

Sound Blaster PCI512

User Guide

On-line Version

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Milpitas, CA. 95035
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Tel: (408) 428-6600**

declares under its sole responsibility that the product

Trade Name: **Creative Labs/Ensoniq**

Model Number: **CT4690/4670**
has been tested according to the FCC / CISPR22/85 requirements for Class B devices and found compliant with the following standards:

EMI/EMC:ANSI C63.4 1992, FCC Part 15 Subpart B

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1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesirable operation.

Ce matériel est conforme à la section 15 des règles FCC.

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1. Le matériel ne peut être source D'interférences et
2. Doit accepter toutes les interférences reques, Y compris celles pouvant provoquer un fonctionnement indésirable.

Supplementary: CT4690 is an optional add-on board for CT4670 that provides I/O for an external device.

**Compliance Manager
Creative Labs, Inc.
August 14, 1998**

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Introduction



The colored insert in this manual gives you the latest information about your audio card, and contact information for Creative Labs.

Sound Blaster PCI512 is Creative's entry-level Environmental Audio™ audio card for high-quality 3D gaming. It offers SB PCI compatibility, real-time special effects, high-quality 4-speaker output, and full environmental support for the largest number of supported titles and applications from the past, present, and future.

Powerful Audio Processing Engine

The EMU10K1™ audio processor is the most powerful integrated music, audio, and effects engine available. Every signal is processed at 32-bit, 48 kHz using 8-point interpolation to smoothen the sound—instantly improving any audio source. Besides advanced signal processing, the EMU10K1 provides real-time effects including Reverb, Chorus, Flanger, Echo, and Pitch Shifter, that rival a stand-alone effects processor worth \$500.

Environmental Audio™ Enhances Existing Contents

Experience depth and realism beyond existing 3D audio. Apply preset environments such as *hall*, *cave*, or *underwater* that can be applied to your existing games and applications for incredibly true sound. Game environmental settings also make your existing games come “alive” instantaneously.

Multiple Speaker Output

Produce surround-sound audio on your PC with built-in support for two or four analog speakers.

Sound Blaster PCI Standard

You can be assured of near-perfect Sound Blaster compatibility on the PCI bus while enjoying all its benefits. It works with the existing MS-DOS®-based and Windows®-based titles, providing support on these legacy applications.

After installing the Creative audio software, refer to the on-line *User's Guide*, located in the audio card group, and on-line Help for detailed information about the Creative Mixer and other utilities.

System Requirements

For the best results from your audio card, you need:

- IBM-compatible PC with a Pentium® or equivalent processor rated at 133 MHz (166 MHz recommended)
- 16 MB RAM for Windows 95/98 (32 MB RAM recommended); 32 MB RAM for Windows NT 4.0
- CD-ROM drive
- 33 MB of storage space on your hard disk for Windows 95/98; 30 MB for Windows NT 4.0
- Windows® 95, Windows 98, or Windows NT 4.0
- PCI 2.1 compliant expansion slot for the audio card
- Powered speakers (Cambridge SoundWorks recommended) or external amplifier

Latest Information

The README file on the Sound Blaster PCI512 installation CD contains information and changes not available at the time of printing. Read the file before you begin.

Document Conventions

The following typographical conventions are used throughout this document:

- Bold** Bold face type identifies words and phrases that are to be entered exactly as shown.
- Italic* Italic type, in commands, identifies words and phrases that are to be replaced by you. Italic in the text emphasizes or identifies a word or phrase that is being defined.
- ALL CAPS A word in all capital letters identifies a key you are to press. For example, “Select *Yes* and press ENTER.”



The notepad icon indicates information that is of particular importance and should be considered before continuing.



Designates a caution or warning that can help you avoid situations involving risk.

Installing Your Audio Card

What You Need

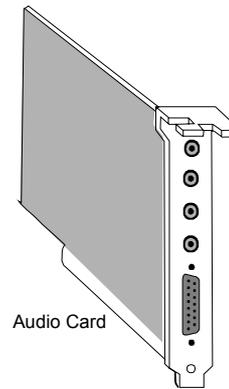
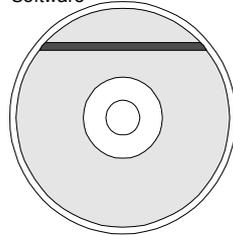
Most of the items you need for installation are included. The following illustration shows the basic components necessary for a complete installation.



Installing your audio card requires you to perform the following steps:

- Install the audio card
- Install the Creative audio software
- Test the installation.

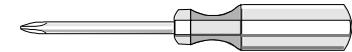
Creative
Audio
Software



Audio Card



CD Audio Cable



Phillips Screwdriver
(not included)



Refer to the colored insert for specific information about the audio card.

Installing the Audio Card



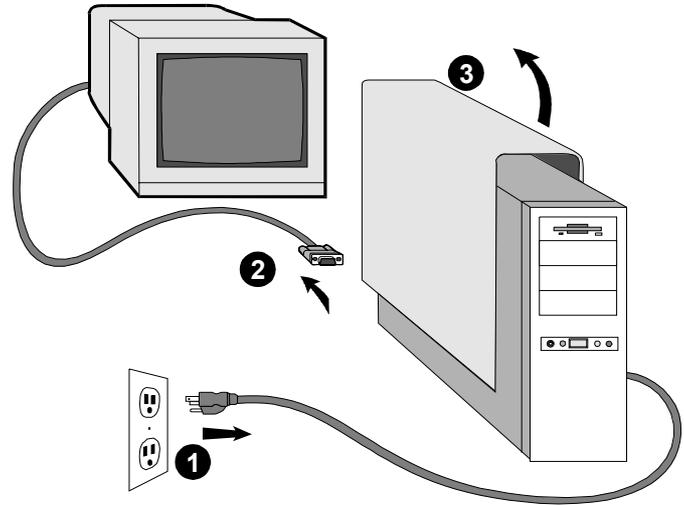
Before you remove the computer cover, touch a grounded metal surface to discharge static electricity.



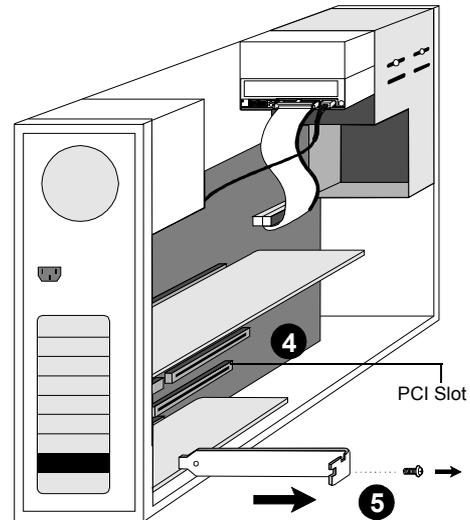
Remove or disable any existing audio card and its driver from your computer. Refer to the manufacturer's documentation for details.

To install the audio card:

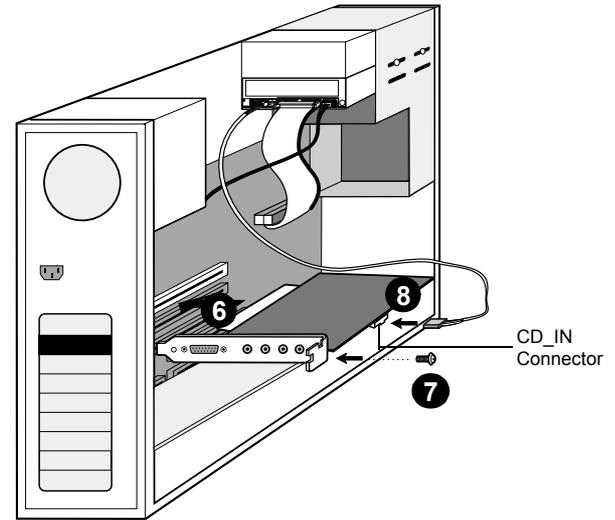
1. Turn off your computer, and disconnect the power cable.
2. Disconnect the monitor and other devices that are connected to the computer.
3. Remove the computer cover.



4. Locate a PCI slot to accommodate the audio card.
5. Remove the slot cover from your computer—save the screw to secure the audio card.



6. Align the gold-stripped tabs on the bottom of the audio card with the PCI slot, and firmly press the card into place until it fits snugly.
7. Use the screw from the slot cover to secure the audio card to the computer's frame—securing the card assures proper grounding.
8. Connect the CD audio cable from your CD-ROM drive to the audio card CD_IN connector.



9. Connect speakers, headphones, microphone, joystick, MIDI devices, or other devices to the back panel of the audio card.

Stereo, CD player, tape deck, etc.

Joystick

Microphone

10. Replace the computer cover.
11. Reconnect the power cable, monitor, and other devices.

MIDI device

Powered speakers (front), headphones, or amplifier

Powered speakers (rear) or amplifier



If you are connecting a 2-speaker system to the audio card, use the Line Out connector (third from the top).

Installing the Creative Software

The Sound Blaster PCI512 Software CD contains drivers necessary for operation and utilities to make the most of the audio card. The software installation varies according to your computer's operating system:

- Windows 95
- Windows 98
- Windows NT

Windows 95



- This manual reflects a software installation in an unmodified version of the operating system. Your installation screens and procedure may vary slightly from what is shown and described. The variations may be caused by other software/hardware installed on your computer, or the version of the Windows 95 operating system.
- If the Sound Blaster software installation screen appears, click on Exit. You must install the audio card drivers before installing the applications.



Double-click the *My Computer* icon on your desktop, right-click your CD-ROM drive icon, and click on AutoPlay to start the Creative audio software install if the CD is in the drive.

When you turn on your computer, Windows 95 automatically detects the new hardware, and prompts you for the software installation disk. The installation may vary from the instructions below based upon previously installed software and hardware.

To install in Windows 95:

1. Turn on your computer for Windows 95 to automatically detect your new hardware. The New Hardware Found dialog appears.
2. Select the *Driver from disk provided by hardware manufacturer* option, and click OK. The Install From Disk dialog appears.
3. Insert the Sound Blaster PCI512 Software CD in your CD-ROM drive. Enter the path for your CD-ROM drive and the software on the disk. For example, use the Browse button to locate, or type, the following: **D:\AUDIO\ENGLISH\WIN95DRV** (D:\ represents your CD-ROM drive). Click OK to install the Windows 95 drivers.
4. When prompted, install the gameport/joystick drivers from the installation CD. For example, use the Browse button to locate, or type, the following: **D:\DIRECTX\DIRECTX\DRIVERS**. Click OK to install the gameport/joystick drivers.
5. You may be prompted to restart your computer—restart your computer for the drivers to take effect.
6. If Autorun is enabled and the Sound Blaster PCI512 disk is in the drive, the Creative Software Installation screen appears. The software included with your Sound Blaster PCI512 is listed on the screen. Select Creative Audio Software and any other applications that you want to install and click on OK.
7. Next, the Software License Agreement appears. Read the text and click on the Yes button if you accept the terms of the agreement.

The README file follows. Please read the file for any last minute information not included in this manual. Click Next when finished.

8. Next, you are asked to accept the default destination directory, or enter a new directory. When the directory is correct, click the Next button.
9. Next, the Setup Options are displayed. When you select an option, the installation continues.
10. The Select Program Folder dialog allows you to select the folder to which the audio software is to be installed, or you may confirm the default selection. Click the Next button when the Program Folder is correct.
11. The Installation Information dialog lists the installation selections you have made. To make changes to your selections, click on the Back button until you reach the screen with the option to be changed. Then, click Next until you are returned to the Installation Information dialog. If the information is correct, click the Next button to continue.
12. The Creative Sound Blaster PCI512 installation screen appears to inform you of the progress of the installation.
13. You may be prompted to restart your computer—restart your computer for the drivers to take effect.

Windows 98

The following instructions describe the Sound Blaster PCI512 installation in Windows 98.

To install in Windows 98:

1. The Windows 98 Add New Hardware Wizard automatically detects the Sound Blaster PCI512 and attempts to locate the driver media provided by the manufacturer. Insert the Sound Blaster PCI512 installation CD and click the Next button.
2. Select the Search For The Best Driver For Your Device (Recommended) option and click the Next button.
3. Clear all check boxes and click only the Specify a Location check box. Type or click the Browse button and point to the driver path: **D:\AUDIO\ENGLISH\WIN95DRV** (**D:** represents your CD-ROM drive). Click the Next button.
4. Click the Next button to install the Windows 98 drivers.
5. Click the Finish button when the installation is complete.
6. Restart your computer for the changes to take effect.
7. Follow the software installation instructions for Windows 95 (step 6).

Windows NT



After you install the audio card drivers and restart your computer, you may receive a Service Control Manager error. See “Windows NT Service Control Manager Error” on page 6

The following instructions describe the Sound Blaster PCI512 installation in Windows NT 4.0.

To install in Windows NT 4.0

1. Click the Start button on the Taskbar, select Settings, and click on Control Panel.
2. On the Control Panel, double-click the Multimedia icon.
3. On the Audio Devices tab page, click the Add option, and choose the Unlisted or Updated Driver option. Click the OK button.
4. Insert the Sound Blaster PCI512 installation CD and follow the instructions for each screen to complete the installation.

Creative Launcher

Creative Launcher allows you to organize your desktop and open Creative applications quickly.



For more information on the Creative Launcher, see the online *User's Guide*.

The Creative Launcher is installed at the top of your screen. If it does not appear, move your mouse pointer to the top of the screen. As the pointer reaches the top of the screen, it changes to a pointing hand and the Creative Launcher displays as a bar window. The Launcher consists of the System Menu icon (the Creative logo at the top left corner), the web site icon, the group tab pages, and the group items. The Environmental Audio icon also appears in the right corner.

Options

To set the options for the Launcher:

1. Click the System Menu icon on the Launcher.
2. On the System menu, click Properties. The Properties dialog appears.
3. Select or clear the desired options.
4. Click the OK button to apply the changes to the Launcher.

Groups

You can place three kinds of items on the Launcher:

- Subgroups
- Shortcuts
- Plugins

A *subgroup* is an item within a group that may contain more items.

The installation creates a number of group tab pages in the Launcher that may contain *shortcuts* to Creative applications such as PlayCenter and Control Panel.

A *plugin* is a Creative software module that is integrated into the Launcher. Examples are the Volume Control plugin and the Command Line plugin.

Use the System menu on the Launcher to add, delete, and rearrange groups and items within each group on the Launcher.

Creative PlayCenter

PlayCenter allows you to play most types of media, such as multimedia files (MIDI, Wave, etc.), audio CDs, Video CDs and DVD-Videos. Just insert or select your media and PlayCenter does the rest.



PlayCenter also allows you to organize and arrange your multimedia files and tracks into albums.

PlayCenter is usually launched automatically when you insert a disc into your CD-ROM/PC-DVD drive. It recognizes the media and starts playback of the disc, if those preferences are set.

Once PlayCenter is launched, place your mouse pointer over a button or icon on the interface. The icon or button lights and the corresponding tooltip is displayed. The PlayCenter display varies slightly with different media. Not all features and functions of the PlayCenter may be available at any one time. A grayed out button or menu indicates that the function or option is unavailable.

If you are playing a VCD or DVD-Video, the Video window appears. Right-click anywhere in the Video window to display the options menu.



To use the DVD function in PlayCenter, you must have a Creative PC-DVD drive and the latest software components installed in your system.

PlayCenter is usually launched automatically when you insert a disc into your CD-ROM/PC-DVD drive. It will recognize the media and start playback of the disc, depending on the preferences you have set. If it does not, follow the steps described below to play your multimedia files and discs.

To launch PlayCenter:

1. On the taskbar, click the Start button, select Programs, select Creative and click Creative PlayCenter.

To play a multimedia file:

1. Launch PlayCenter.
2. On the PlayCenter interface, click the Media button.
3. On the Media menu, click Open Media File. The Open dialog appears.
4. Select the multimedia file you wish to play by exploring the directories.
5. Click the OK button.
6. On the PlayCenter interface, click the Play button.

To play a disc:

1. Launch PlayCenter.
2. Insert a disc into your CD-ROM/PC-DVD drive.
3. On the PlayCenter interface, click the Media button.
4. On the Media menu, select and click the CD-ROM/PC-DVD drive.
5. On the PlayCenter interface, click the Play button.

To adjust the volume:

1. On the PlayCenter LED display, click and drag the Volume Slider to the desired volume level or double-click the desired level on the Volume Slider.

Configuring

You can set your preferences as to how PlayCenter is to handle the playback of your discs and multimedia files.

To set playback preferences:

1. On the PlayCenter Interface, click the System Menu icon.
2. On the System menu, click Preferences. The Preferences dialog appears.
3. Select the check boxes for your preferred settings.
4. Enter a value for Intro length (in seconds) to specify the duration of the initial track playback.
5. Click the OK button.

To make PlayCenter the default player for discs:

1. On the PlayCenter interface, click the System Menu icon.
2. On the System menu, click Disc Detector. The Creative Disc Detector dialog appears.
3. Click the Players tab page.
4. Select the disc type in the list box and click the Select Player button. The Player Properties dialog appears.
5. In the Target text box, enter the path or click the Browse button to locate the PlayCenter program (that is, **C:\PROGRAM FILES\CREATIVE\PLAYCENTER\CTPLAY.EXE**).
6. Click the OK button to close the Player Properties dialog.
7. Click the OK button to save the changes and close the Disc Detector dialog.

To make PlayCenter your default player for multimedia files:

1. Launch Windows Explorer.
2. On the menu bar, click View and select Options. The Options dialog appears.
3. Click the File Types tab page.
4. Select the multimedia file type in the list and click the Edit button. The Edit File Type dialog appears.
5. Click the Edit button
6. Enter the path or click the Browse button to locate the PlayCenter program (that is, **C:\PROGRAM FILES\CREATIVE\PLAYCENTER\CTPLAY.EXE**).
7. Click the OK button to close the dialogs.
8. Click the Close button to save the changes and close the Options dialog.

Advanced Configurations

Resolving Hardware Conflicts

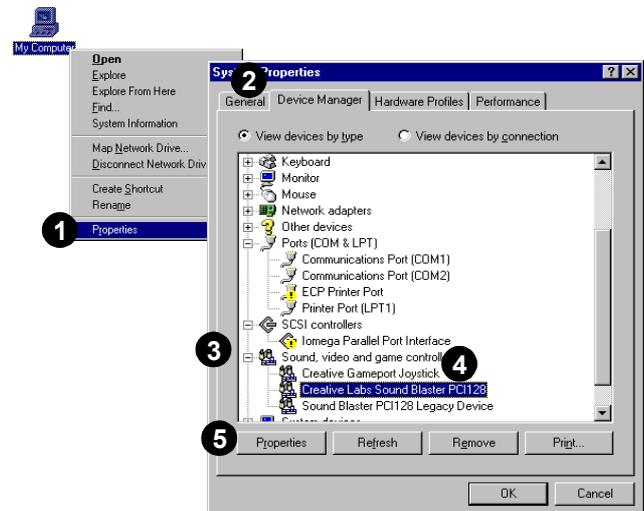


In the Device Manager, a [+] represents an expandable list of items. A [-] represents an expanded list. A circled exclamation mark denotes a conflict.

Hardware conflicts occur when two or more devices contend for the same resources. Conflicts between your audio card and another device may occur regarding the I/O address, IRQ line, or DMA channel.

To resolve hardware conflicts:

1. Right-click the *My Computer* icon on your desktop, and select *Properties*. The System Properties dialog appears.
2. Click the *Device Manager* tab.
3. Double-click *Sound, video, game controllers*. A list of multimedia devices appears.
4. Select your audio card, for example, Creative Labs Sound Blaster PCI512.
5. Choose the *Properties* button.
6. Click the *Resources* tab.
7. Uncheck *Use automatic settings*.
8. Change “Settings based on:” if alternate settings are available.
9. Determine the conflict by reviewing the “Conflicting device list.”
10. Select the conflicting item in the “Resource Settings” list.
11. Click the *Change Settings* button.
12. Use the mouse to select a new setting.



Uninstalling the Software



Close all audio card applications before running the uninstall procedure. If a card's application is running during the uninstall procedure, that application is not uninstalled.

13. Select OK to close each of the properties windows, and restart your computer.

The Windows Uninstall utility allows you to remove applications and to re-install them to correct problems, change configurations, or make upgrades.

To uninstall the software:

1. Click  on the taskbar, and select *Settings* from the Start menu.
2. Select *Control Panel*. The Control Panel group appears.
3. Double-click the *Add/Remove Program* icon. The Add/Remove Programs Properties dialog appears.
4. Select the software to uninstall from the list.
5. Select the *Add/Remove* button.
6. Follow the instructions on-screen to complete the uninstall procedure.



Connecting to the Gameport

The gameport on the audio card is a standard PC game control adapter or game I/O port. You can connect most analog joysticks with a 15-pin D-sub connector directly to the port; it works with any application that is compatible with standard PC joysticks.

If you need to run two joysticks, a Y-cable is available from Creative Labs' Customer Service (Y-cables from other sources may not work). Some sophisticated joysticks may require the MIDI adapter or Y-cable to work with the audio card.

Enabling/Disabling



When the gameport is disabled, a red cross is placed in front of the Device Manager entry.

To enable/disable the gameport:

1. Click the Start button on the Windows Taskbar, select Settings, and click Control Panel.
2. On the Control Panel, double-click the System icon.
3. On the System Properties dialog, click the Device Manager tab.
4. Double-click Sound, Video And Game Controllers, and then select Creative Gameport Joystick.
5. Click the Properties button.
6. On the Properties dialog:
 - If you have an Original Configuration (Current) check box:
 - Enable* the gameport by selecting the check box.
 - Disable* the gameport by clearing the check box.
 - If you have a Disable In This Hardware Profile check box:
 - Enable* the gameport by clearing the check box.
 - Disable* the gameport by selecting the check box.
7. Click OK to restart Windows.

Connecting a MIDI Device

The audio card supports the following MIDI standards:

- MPU-401 UART
- Sound Blaster MIDI

To connect a MIDI device to the audio card, you need a MIDI cable adapter. The MIDI cable adapter allows you to attach both a MIDI instrument and a joystick at the same time. Contact your local dealer for more information.

Troubleshooting

This chapter provides solutions for problems you may encounter during installation or normal use of your audio card.

No sound is heard from audio (music) CDs

Various conditions may be responsible. To troubleshoot, please check the following:

- Creative PlayCenter or Microsoft Volume Control mute options and volume sliders. (Refer to the on-line Sound Blaster PCI512 *User's Guide* or Help, or on-line help for detailed information.)
- Connect headphones to the stereo phone jack on your CD-ROM drive's front panel, and adjust the volume control settings on the drive. If there is sound from your headphones, check the CD audio cable connection from the CD-ROM drive to the audio card.
- Ensure the speakers are properly connected to the audio card's output connector. (See the colored insert for detailed connection information.)

Joystick port is not working

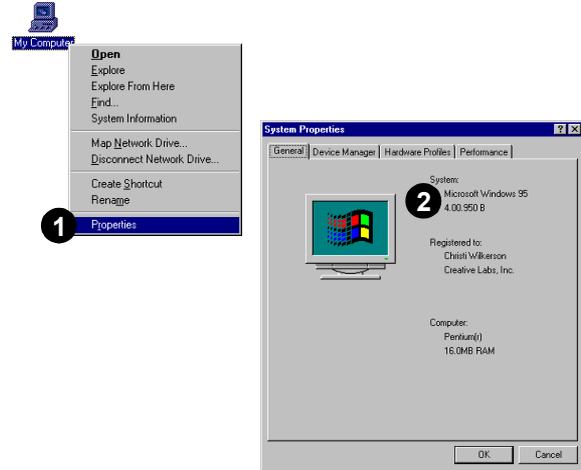
To troubleshoot, check the following:

- The audio card joystick port conflicts with another joystick port in the system. Disable the audio card joystick port, and use the system's joystick port. To disable the joystick port, see "Connecting to the Gameport" on page 3 (select the joystick you want to disable rather than the audio card shown).
- The joystick drivers, MSJSTICK.DRV and VJOYD.VXD, may not be installed. Uninstall the joystick, then reinstall to load the drivers. The drivers are located on the Sound Blaster PCI512 installation disk in the `\DIRECTX\DRIVERS` directory. See Sound Blaster PIC512 on-line help for detailed information.

Determining your Windows version

To determine your Windows 95 version number:

1. Right-click the *My Computer* icon, and select *Properties*. The System Properties dialog appears.
2. On the *General* tab, note your Windows 95 version number. Possible version numbers are:
 - 4.00.950
 - 4.00.950A
 - 4.00.950B



Computer hangs or restarts during installation

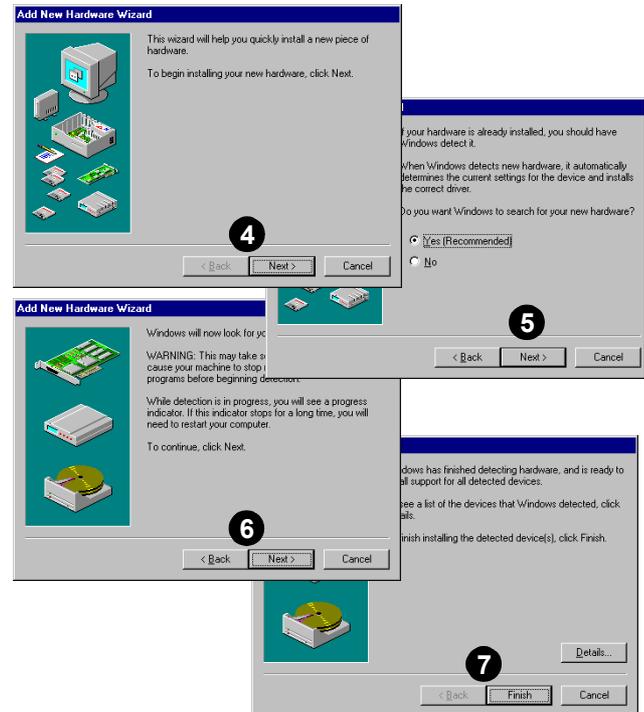
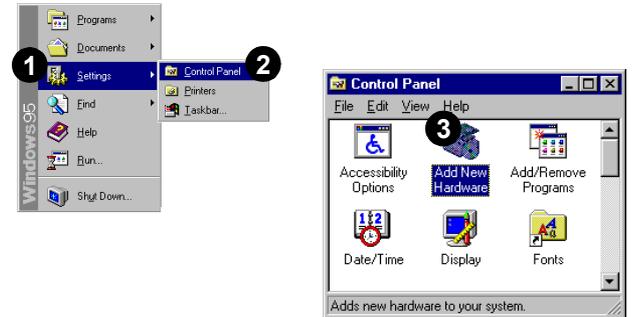
A hardware conflict may cause the computer to hang or restart during the installation procedure. Check the following to resolve the conflict:

- A hardware conflict with another device in your system (see “Resolving Hardware Conflicts” on page 1).
- Previously installed audio card hardware or software needs to be removed (see “Uninstalling the Software” on page 2).
- The audio card is not seated in the slot properly (see “Installing the Audio Card” on page 2).
- PCI bus mastering devices may be interfering with the operation of the audio card. Temporarily remove non-essential PCI bus mastering devices.

Audio card is not automatically detected

To manually configure your audio card for Windows 95:

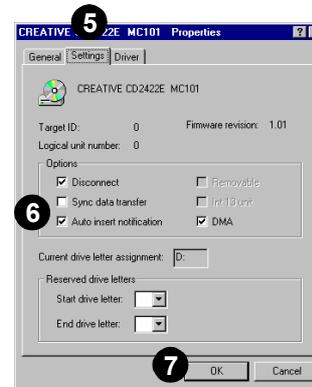
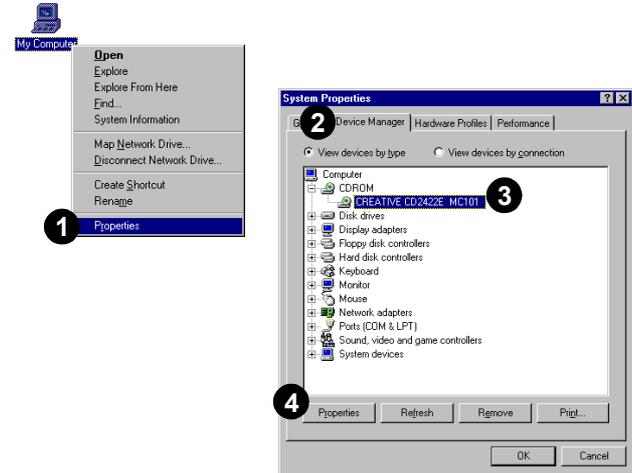
1. Click  on the taskbar, and select *Settings* from the Start menu.
2. Select *Control Panel*. The Control Panel group appears.
3. Double-click the *Add New Hardware* icon. The Add New Hardware Wizard dialog appears.
4. Select *Next* to continue.
5. Choose *Yes* to have Windows search for new hardware, then select *Next*.
6. Select *Next* to continue.
7. Select *Finish*, and follow the prompts to complete the new hardware installation.



CD does not automatically run when you insert it in the drive

To enable the “Auto insert notification” feature:

1. Right-click the *My Computer* icon on your desktop, and select *Properties*. The System Properties dialog appears.
2. Click the *Device Manager* tab. A list of devices appears.
3. Double-click *CD-ROM*, and select your CD-ROM drive.
4. Choose the *Properties* button. The CD-ROM drive properties dialog appears.
5. Choose the *Settings* tab.
6. Click the “Auto insert notification” option to enable.
7. Select OK until all Properties dialogs are closed, and restart Windows for the changes to take effect.



No sound is heard from speakers

To troubleshoot, please verify the following:

- Check the Mixer or Microsoft Volume Control mute options and volume sliders. (Refer to the on-line Sound Blaster PCI512 *User's Guide* or Help, or Windows on-line help for information.)
- Ensure the speakers are properly connected to the audio card's output connector. (See the colored insert for detailed connection information.)
- Check the volume control and power connection of the speakers, if they are amplified. (Refer to the speakers documentation for detailed information.)
- Ensure a hardware conflict does not exist between your audio card and another device. (Refer to "Resolving Hardware Conflicts" on page 1, or the Windows on-line help for information.)
- PCI bus mastering devices may be interfering with the operation of the audio card. Temporarily remove non-essential PCI bus mastering devices. If the device is a display card, upgrade the display card drivers, or set the card to the default Windows VGA mode.

No sound from headphones connected to the audio card

If your headphones are connected to the Sound Blaster PCI512:

- The headphones must be connected through the Line Out jack (green, third from the top).
- Open the Speaker dialog from Audio HQ, select Headphones from the Output list.
- Open the Mixer dialog from Audio HQ, check the volume level of your audio source and make sure it is not muted.
- Check the level of Windows Volume Control; make sure your source is not muted.

Static sounds are heard in wave files

Ensure the static sounds are heard in all wave files. If the difficulty occurs only with certain games, refer to the software manufacturer's documentation. To troubleshoot static sounds heard in all wave files:

- Try different resource settings for the audio card, or set the card to use low DMA (see "Resolving Hardware Conflicts" on page 1).
- Move the audio card to another PCI slot. Feedback from the power supply or another device may be responsible.

Excessive Environmental Sound

You may have chosen an environmental preset that is inappropriate for the current audio file.

To select an appropriate environmental preset:

1. Open Environmental Audio Control for Creative Launcher or select from the Program menu by clicking on Start on the Taskbar.
2. In the Environments list, select "No effects" or an appropriate environment.

Insufficient memory for SoundFonts

Select a smaller SoundFont bank:

1. From Audio HQ, double-click the SoundFont icon.
2. On the Configure Banks tab page, select a smaller SoundFont bank.
3. Click Close to exit the dialog.

Windows NT Service Control Manager Error

The Service Control Manager error message may appear after you have successfully installed the audio card. Windows NT is attempting to match the drivers to the previously installed audio card.

To remove the old audio card drivers:

1. Log on to your computer as Administrator.
2. Click the Start button on the Taskbar, select Settings, and click Control Panel.
3. Double-click the Multimedia icon and, then, click the Devices tab.
4. In the list, remove all entries from “Audio Devices” and “MIDI Devices and Instruments” except:
 - Audio for Creative SB PCI512
 - MIDI for Creative SB PCI512
 - MIDI for Creative S/W Synth
5. Click the OK button to close the dialog.